

REMARKS

The Examiner has rejected Claim 8 under 35 U.S.C. § 112. The basis for the content of the claim is that Claim 6, as now amended, defines the solid precursor material as a compound containing a metal selected from the group consisting of molybdenum, niobium, tantalum and tungsten. These "compounds" inherently imply a anion (negatively charged group) and a cation (a positively charged group) wherein Applicants have specified the metals (the operative) cations comprise a sub-generic group of metals under the category of "solid precursor material." Claim 8 further defines and selects one of the metals listed in the Markush group claimed in Claim 6 by defining the specific solid precursor metal material as a tungsten and further defines the anion as a "hexacarbonyl" group.

The Examiner is respectfully requested to reconsider his rejection of the claims as being unpatentable over Kim (5,603,169), in view of Partus (6,616,398).

It is respectfully submitted that Claim 1 as presently written contains the proper language which distinguishes Applicants' invention from the prior art cited.

The predicate for the Examiner's rejection of the claims is his assertion that "Kim discloses a bubbler for solid metal-organic precursors which improve the feeding efficiency and the controlling precision of the precursors," citing col.1 lines 7 - 11. The Examiner's assertion with respect to the Kim teaching and application of same to the claims in the instant application is totally unwarranted.

The Examiner further states in support of his rejection: "The carrier gas enters a bottom hole and exits through an upper exhaust hole (col. 2, lines 32 - 43)." A careful review of the "Prior Art" Figures 1 - 3, as presented in Kim, reveals that the prior art systems disclosed therein and used as basis for the Examiner's rejection, comprise a bubbler body, a carrier gas feed tube

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and an exhaust tube. Figure 1(A) discloses liquid precursor and Figure 1(B) discloses a mass of solid metal-organic precursor wherein after some use a tunnel is generated in the solid. The invention of Kim is a structure which does NOT contain a liquid.

Applicants again emphasize the role of the "liquid" in the present invention.

The present invention insures constant uniform mixing of the carrier gas with the vapor emanating from the powdered precursor material. It does so by : 1) incorporating said precursor in an ultra-low vapor pressure liquid in which it is insoluble; 2) placing the resulting slurry/suspension/emulsion in the interior of the bubble of the apparatus, the interior being defined as that volume in which the carrier gas can flow; 3) flowing the carrier gas exactly as one would do with a liquid precursor.

When these steps are carried out the splashing and agitation of the slurry incorporating the precursor serves to facilitate uniform mixing of the carrier gas and the precursor vapor. This feature is explicated specifically in Claim 1.

Second, the present invention uniquely and unprecedentedly prevents the finely divided solid particles from recrystallizing into larger crystallites, which would lower the delivery rate of precursor vapor. It achieves this goal, as explained at length in the specification, by virtue of the insolubility of the precursor in the liquid in which it is suspended, and the concomitant separation thus effected between the solid and vapor phases of the precursor.

Kim attempts to solve the method of delivery by contacting the metallic precursor with a carrier gas using a compression plate and a pair of porous plates in his "bubbler" and relying only on the gas flow pattern to carry off the precursor. Thus the term "bubbler" is inaccurate when applied to Kim's device as there is no liquid phase in which the carrier gas forms bubbles, as contrasted with Applicants' invention as presently claimed where mixing is achieved by the

agitation of the suspending liquid caused by the actual bubbling of the carrier gas through the liquid.

There is no liquid referred to at all by Kim in his disclosure.

The reference to Partus is also not pertinent to the instant invention, alone or in combination. Partus discloses a method and system for controlling the delivery of vapor from a bubbler containing a supply of liquid through which a carrier gas is bubbled, and from which bubbler vapors are delivered in a vapor stream entrained with the carrier gas.

Partus directs his invention to a concentration detector within the flow path of the bubbler vapors from the bubbler and having the output of the concentration detector input to a concentration controller.

Partus does not disclose mixing of the carrier gas with the vapor emanating from a powdered precursor material. There is no powdered precursor material in Partus.

The present invention, by way of contrast, uses a carefully specified liquid in which solid precursor is contained in an insoluble suspension for the purpose of promoting mixing and for the amelioration of the recrystallization problem, not as a method to supply a vapor stream entrained in a carrier gas which has been bubbled through a liquid.

Applicants respectfully submit that there is no basis for the combination of the Kim and Partus references cited by the Examiner. Applicants have pointed out how these references teach in different directions. The Examiner has selected elements from the cited references for the sake of showing the individual elements or steps claimed without regard to the total teaching of the references.

As noted, the Examiner is improperly picking and choosing. The rejection is a piecemeal construction of the invention. Such piecemeal reconstruction of the prior art patents in light of the instant disclosure is contrary to the requirements of 35 U.S.C. § 103.

The ever present question in cases within the ambit of 35 U.S.C. § 103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the teachings of the prior art at the time the invention was made. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. (Emphasis in original) In re Wesslau 147 U.S.P.Q. 391, 393 (CCPA 1965)

This holding succinctly summarizes the Examiner's application of references in this case, because he did in fact pick and choose so much of the Kim and Partus references to support his position and did not cover completely in the Office Action the full scope of what these varied disclosure references fairly suggest to one skilled in the art.

In support of applicants' argument made immediately above, for example, among the prior art references cited under 35 U.S.C. §103, certain of these references contain teachings in the general field of bubblers. In Kim it is a bubbler wherein a carrier gas is fed through a bed of metal-organic precursors. There is no liquid present in the system. Partus discloses a system for accurate vapor delivery. There is a liquid in Partus, but no metal organic precursor. There is no basis for combining totally different disciplines of the use of a bubbler as has been done in the Official Action.

Further, the Federal Circuit has stated that the Patent Office bears the burden of establishing obviousness. It held this burden can only be satisfied by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the reference.

Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." ACS Hosp. Sys., 732 F.2d at 1577, 221 USPQ at 933. [837 F.2d at 1075, 5 USPQ 2d at 1599.]

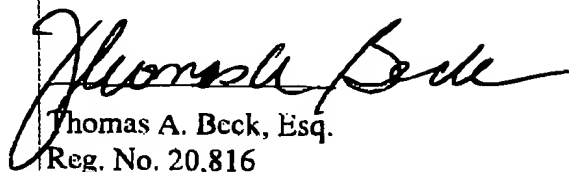
The court concluded its discussion of this issue by stating that teachings or references can be combined only if there is some suggestion or incentive to do so.

In the present case, the skilled artisan, viewing the two references, assuming he could justify a combination of the two references, would be directed toward a totally different delivery system than is called for in the present invention. The two references teach in inconsistent directions. There is no proper basis to combine them.

Applicants have attempted in this response to comply with the Examiner's comments and to place the claims in a form which should result in their allowability. If the Examiner wishes to discuss via telephone the substance of any of the proposed claims contained herein with the intent of putting them into an allowable form, Applicants' attorney will be glad to speak with him at a mutually agreeable time and will cooperate in any way possible.

In view of the arguments and modifications to the claims, allowance of this case is warranted. Such favorable action is respectfully solicited.

Respectfully Submitted,



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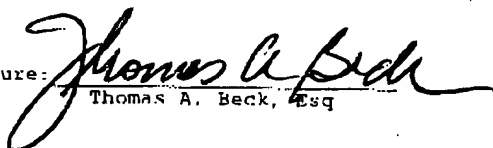
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